

AMENDMENTS TO THE SPECIFICATION

Please insert the following section headings at page 1, after the title and before the first full paragraph:

-- BACKGROUND OF THE INVENTION

Field of the Invention --

Please insert the following section heading at page 1, before the second full paragraph:

-- Description of Related Art --

Please insert the following paragraphs on page 1 after line 21:

-- Mammalian bone tissue is host to a family of protein growth and differentiation factors, called the bone morphogenetic proteins (BMPs). These proteins are capable of inducing new bone formation when implanted in adolescent and adult mammals.

The BMPs are redeployed in adults to cause regeneration of bone *via* mechanisms closely resembling embryonic differentiation. The developmental cascade of bone differentiation consists of chemotaxis of mesenchymal cells, proliferation of progenitor cells, differentiation of cartilage, vascular invasion, bone formation, remodeling, and finally marrow differentiation (Reddi, (1981) Collagen Rel. Res. 1:209-226). It has been shown that the natural endochondral bone differentiation activity of bone matrix can be dissociatively extracted and reconstituted with inactive residual matrix to restore full bone inductive activity (Sampath and Reddi, (1981) Proc. Natl. Acad. Sci. USA 78:7599-7603). The purification of osteogenin, an osteogenic protein from mammalian bone is disclosed by Sampath et al. (1987) (Proc. Natl. Acad. Sci. USA 84, 7109-7113). Urist et al. (Proc. Natl. Acad. Sci. USA (1984) 81:371-375) disclose a bovine bone morphogenetic protein extract having the properties of an acidic polypeptide and a molecular weight of approximately 18 kD. The authors report that the protein is present in a fraction separated by hydroxyapatite chromatography, and that it induces bone formation in mouse hindquarter muscle and bone regeneration in trephine defects in rat and dog skulls.

European Patent Application No. 148,155, published Oct. 7, 1985, discloses osteogenic proteins derived from bovine, porcine, and human origin. One of the proteins,

designated by the inventors as a P3 protein and having a molecular weight of 22-24 kD, is reported to have been purified to an essentially homogeneous state. This material is reported to induce bone formation when implanted into animals. --

Please insert the following section heading at page 1, before the paragraph beginning at line 23:

-- SUMMARY OF THE INVENTION --

Please DELETE the section heading on page 10, at line 13, which reads "DISCUSSION".

Please DELETE the paragraphs on page 10, beginning at line 15, at line 20, and continuing on page 11, at line 12.

Please insert the following section heading at page 11, at line 17:

-- DETAILED DESCRIPTION OF THE INVENTION --

Please replace the paragraph on page 14, at line 1, with the following replacement paragraph:

-- The invention is now described, by way of example with reference to the following ~~Example and the Figure in which~~Examples. --

Please insert the following section heading at page 14, before line 3:

-- BRIEF DESCRIPTION OF THE DRAWINGS --